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ABSTRACT

Two studies, one at Oakland University (Michigan), the other at Northern Michigan University, examined the degree to which first semester course load predicted grade point average (GPA), retention, financial aid debt, and graduation. At Oakland University, analysis of data from 1986 freshman cohort files found that students who enrolled for a full load of 16 credits were much more likely to graduate than students who registered for 12 credits. At Northern Michigan University, the New Student Orientation survey was administered to freshmen in 1985-1987 and again in 1995 and 1996. This study identified three trends: (1) that entering freshmen who took low course loads initially almost invariably took longer than 4 years to graduate; (2) that freshmen who took higher course loads tended to have higher GPAs; and (3) that low course loads and delayed graduation appeared related to rapidly increasing student debt loads. Other analyses at both institutions indicated significant decreases in the last decade in the percent of freshmen enrolling for a 16-credit course load. At Oakland in 1985, 44 percent of freshmen had enrolled for a 16-credit course load; by 1995 the figure had dropped to 14 percent. The survey instrument used in the Northern Michigan University study is attached. (Contains 14 references.) (BF)

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Credit Hour Loads at College Onset and Subsequent Academic Performance: A Multi-Institution Pilot Project

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This paper was presented at the Thirty-Seventh Annual Forum of the Association for Institutional Research held in Orlando, Florida, May 18-21, 1997. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Jean Endo
Editor
AIR Forum Publications

Credit Hour Loads at College Onset and Subsequent Academic Performance: A Multi-Institution Pilot Project

Abstract: Researchers at two universities are jointly exploring a single research topic and are employing e-mail to share methods and findings on a "real time" basis. This pilot project is examining the relationship between first semester credit hour load and outcome measures such as performance, retention, financial aid debt, and graduation.

Background - An awareness of the credit load issue and its impact on performance, retention and cost did not glaringly emerge as a critical campus concern. Rather, this issue took shape coincidentally on both the Oakland University and Northern Michigan University campuses as a result of efforts to reshape student tuition and to examine and potentially impact student course taking behavior. While the experience of the two campuses differs somewhat in the nature of prior research and the motivation driving the current research, it is clear that this phenomenon is an important construct for both campuses.

At Oakland University, examination of data from newly created freshman cohort files led to the observation that students who enrolled for a full load of 16 credits were much more likely to graduate than students who registered for 12 credits. Further investigation into this issue found that research done at Oakland University by David Beardslee in the early 1970's had addressed the same phenomenon. In his research on student persistence, Beardslee found that the best predictor of retention was first term course load. In fact, Beardslee reported that for students entering in 1967-69, retention was more highly related to first term credits than other variables including sex, high school g.p.a., and residence hall versus commuter status (Beardslee, 1974).

"Our interpretation is that the importance of work load as a predictor of retention involves its efficacy as a measure of the fraction of the students' total life which is committed to or involved in the university (Beardslee, 1979, p. 3)."

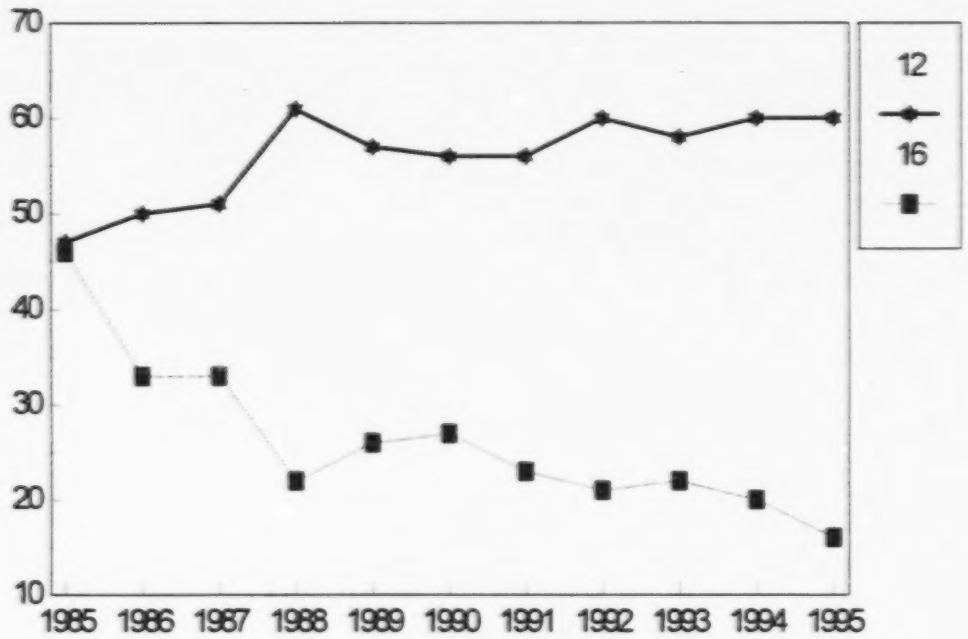
Beardslee developed the concept of "semesters to attain the degree" (STAD) as a predictor of retention from year to year. This model combined the course load information with information about how many credits the student had already accumulated to create a single index of the number of semesters remaining to complete the degree at the current semester course load given the number of credits already accumulated. The premise here is that the students' perspective is forward-looking toward the achievement of the goal. Beardslee attributes to professor Sheldon Appleton the quote "the closer the light at the end of the tunnel, the more likely the student is to keep going (p.16)." So the fewer the STAD's remaining, the more likely it becomes that the student will choose school in the face of competing possibilities and distractions. FTIACs (i.e., first-time, full-time freshmen) who enroll for 16 credits the first term have 8 STADs. By enrolling for 12 (or fewer) credits, the student increases the number of STADs and lengthens the tunnel at the onset. By doing so, the individual reduces the likelihood of attaining his or her degree.

Beardslee noted that decreasing numbers of incoming freshmen were enrolling in a full 16 credit course load and that trend has continued. Only one seventh of Oakland University freshmen enrolled for 16 semester credits in Fall 1995, compared to 44% in 1985 (see Figure 1).

Figure 1

Credits Taken by First-Term FTIACs

Oakland University 1985-1995

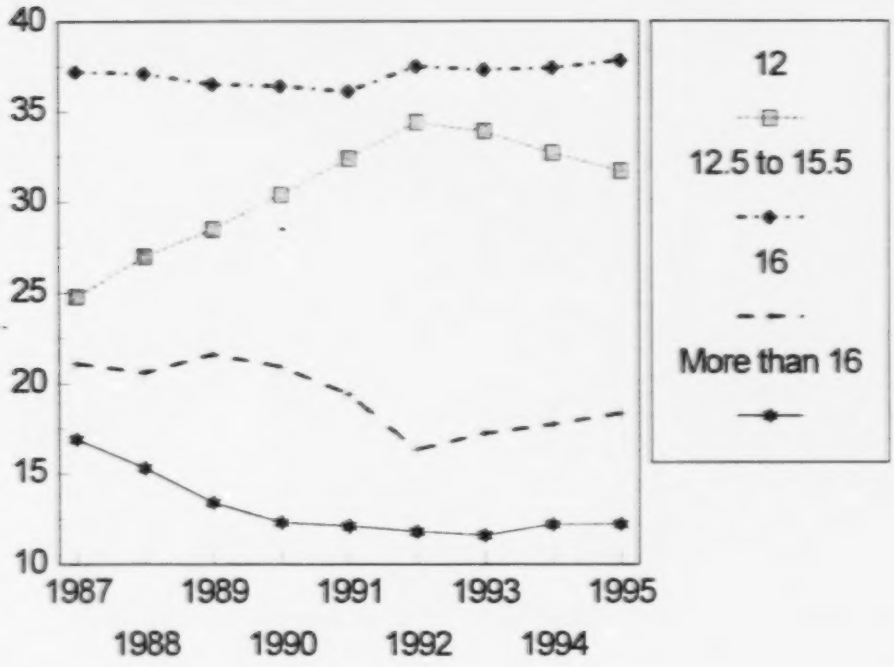


The fallout from this trend impacts many issues beside student persistence, such as course scheduling, tuition revenues and state funding.

At Northern Michigan University three sets of trend analyses have driven home the impact of this variable. The first is related to course taking behavior. As shown in Figure 2, an increasingly large percentage of full-time freshmen have chosen to take either 12 hours or 12.5 to 15.5 hours rather than 16 or more hours in their first semester. This course taking pattern at college onset tends to be trend setting at NMU and those students who begin as part-time students (and may actually perceive themselves to be full-time) almost invariably take longer than 4 years to

graduate. In fact, only 14.1% of the NMU 1987 new freshmen cohort graduated in four years.

Figure 2
Northern Michigan University
Undergraduate Credit Hour Loads
of First-Time, Full-Time Freshmen taking 12 or more hours



The second trend analysis is related to course taking behavior and student performance (as measured by college gpa). Table 1 indicates that a consistent pattern of results emerges for three new freshman cohorts which is that higher course loads are related to higher grade point averages. A similar pattern exists for the relationship between course load and college performance over the duration of the student's career at NMU. There are clearly antecedent factors such as high school academic credentials and student's self perceptions which are also related to both course taking behavior and performance. The interrelationship of these variables

will be explored below.

Table 1
Northern Michigan University
First-Time, Full-Time Freshmen
A Relationship Between Credit Hour Loads and Performance*

	Fall 1993	Fall 1994	Fall 1995	Fall 1996
Credit Hours	Fall gpa	Fall gpa	Fall gpa	Fall gpa
12	2.06	2.06	2.17	1.93
12.5 to 15.5	2.23	2.36	2.36	2.32
16	2.42	2.46	2.44	2.46
16.5 to 20.0	2.61	2.56	2.75	2.74
Average	2.27	2.35	2.37	2.31

* Based on a 4.0 scale

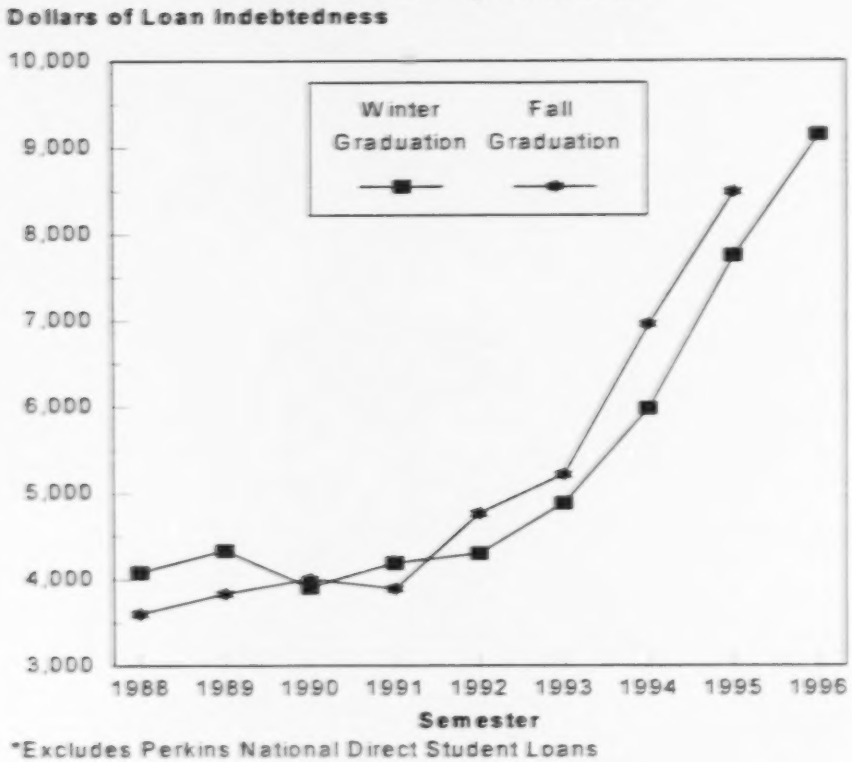
Note: At Oakland University, data from the Fall 1995 and Fall 1996 new freshman cohorts provide similar results. Differences in first semester gpa ranged from .10 to .33 and were consistently in favor of the students taking 16 credit hours versus 12. These performance differences held when the students were separated by high school gpa and their performance was arrayed by course load.

The final trend is related to the amount of loan debt that students are amassing in order to obtain a degree at Northern Michigan University. Using socio-economic indicators such as average household income and % of students on pell grants, compared to students at most other Michigan public universities, a large percentage of NMU students are being economically challenged in order to attend. As depicted in Figure 3, student loan debt is increasing geometrically. Even

Figure 3

Average Student Loan Indebtedness

For Graduating Students*



*Excludes Perkins National Direct Student Loans

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more startling is the fact that the large drop in the percentage of freshmen taking a full 16 hour load has not yet occurred in terms of its impact on loans at graduation. This reality will have ominous fiscal repercussions for the freshman classes of 1990 and beyond.

Literature Review

Over the past two decades, state and federal support of higher education has diminished which has resulted in a major shift in that higher costs are being passed directly on to the student (Layzell and Lyddon, 1990; Hartle, 1996). Concurrently, there has been a marked increase in

involvement by legislative bodies and system wide offices in the affairs of higher education institutions. Among the impacts produced by soaring tuition rates is a significant increase in the number of part-time students, an increased reliance of student on financial aid and a noticeable increase in the length of time that it is taking students to graduate.

Media calls have become commonplace for higher faculty productivity, postsecondary institutional efficiency, the funding of "practical" research and the need for higher graduation rates. A closely related issue that is just now coming to public attention involves full-time students taking **too** long to graduate, that is staying too long at the "public trough." While European nations have long struggled with the phenomenon of the professional student, in the United States it has only been in the last two or three years that state legislatures (e.g., Florida, Texas, California and Oregon) have begun to take punitive actions against students such as imposing higher tuition rates for credits beyond a certain maximum or assessing fiscal penalties on students who take too many years to graduate.

The higher education retention literature is an extensive one and theoretical constructs such as student integration (e.g., Tinto, 1975) and student attrition (e.g., Bean and Metzner, 1985) are typically utilized to examine retention. On the surface, these types of models have little to do with student decisions about their course loads or the length of time they take to obtain their degrees. However, Beardslee viewed course load as a "specific input characteristic which points to likelihood of dropping out. ... Specifically, by the act of registering for a full- or part-time work load, the student tells us how much of his time is committed to college. The more

committed he is, the more likely he is to complete a degree (1974, pp. 117-118)."

This fits with Tinto's model of commitment as an indicator of the likelihood of student departure (Tinto, 1993) and Cope and Hannah's conclusion that "personal commitment to either an academic or occupational goal is the single most important determinant of persistence in college (Cope and Hannah, 1975, p. 19)." From another perspective, the student who takes less than 16 credits may be less involved in the academic experience, and possibly becomes less integrated into the college community. This would also fit in Tinto's model as well as Pace's theory of student effort (1984). The influence of external factors are likely to be greater for students who extend their time to degree by taking lighter course loads. This would be congruent with Tinto's interactive model of student departure (1993), as well as Bean and Metzner (1985) and Cabrera, Castaneda, Nora and Hengstler (1992). Although these models do not specifically address the impact of initial course load, they are useful in the present analysis of the impact of course load on persistence and graduation.

Volkwein and Lorang (1996) have coined the term "extenders" to describe the full-time student who takes light credit hour loads and/or takes longer than four years to graduate. It is interesting that these researchers also use the term "lingering" to describe this student behavior. While this course-taking pattern is becoming increasingly prevalent at many institutions, there is little in the extant literature which has examined its precursors or its outcomes. The works of Volkwein (1993) and Volkwein and Lorang (1996) form the heart of the current literature in an area which is ripe for further research because of the increasingly widespread occurrence of this behavior.

Volkwein (1993) identified two types of extenders: vocational and collegiate. The vocational group had higher levels of financial need and loan indebtedness, lower gpa's, and were more often required to work. The collegiate extenders were those who chose to take lower loads so that they could have more free time and also to maintain their grade point average. In a subsequent study which employed a variety of analytical techniques, Volkwein and Lorang (1996) isolated four scales or factors which appear to be related to lowered course loads: 1) a desire for more free time and to protect a higher gpa, 2) work and family responsibilities, 3) course access problems and 4) dropping courses after the beginning of a semester. These authors also identified three factors related to students' taking longer than fours years to graduate: 1) a desire for more free time; 2) higher levels of financial need (but not student employment); 3) special circumstances (personal or medical emergencies). A fourth category included course availability and scheduling problems, course difficulty and lack of satisfaction with progress. These factors were associated with students struggling academically who were likely to drop out.

The extenders research by Volkwein presents informative and interesting findings but the State University of New York at Albany is a relatively selective, residential institution with traditionally admissible students who are expected to graduate in four years. The occurrence of the behavior being studied is actually very atypical there (only 10 to 14% of FTIAC freshmen at SUNY exhibit this type of behavior, which did not appear to impact persistence.) The present research is focused on two regional, comprehensive universities where more than half of full-time freshmen take less than a full academic load of 16 credits per semester.

Purpose - The primary objectives of this study are to determine the degree to which class load decisions being made at the beginning of a student's college career are related to the student's academic performance, the likelihood of program completion, the length of time to degree and the cost of obtaining that degree. This pilot project represents a multi-institution attempt to examine this important yet poorly understood construct. The findings may hold implications for institutional policy and practice, and perhaps may have an impact on student performance and success.

Analysis and Findings - At Oakland University, the first question we attempted to address was "Is this apparent difference actually related to the first term course load?" The research began with an examination of the academic progress of full-time students by the number of credits for which they were enrolled in the first semester and also by high school g.p.a. Linear regression, was then employed to investigate the relationship of initial course load (as one of a number of independent variables) with student persistence to the second year and to graduation (as the dependent variables). First term course load was also treated as a dependent variable to see what could be learned about which input characteristics contributed to a student's course load decisions.

The dynamics of the enrollment patterns that evolved were examined by following the academic progress of three groups of students in the 1986 cohort as measured by average cumulative credits accumulated at the end of each fall and winter (spring) term. (Enrollments in the spring and summer terms did not significantly affect the pattern between groups.) It was found that

once a pattern of taking fewer credits is established, it continues throughout the student's career. In fact, among all three groups, there is a tendency for the average number of credits to decrease slightly each term for the first 2 to 3 years. That is, they are not "starting out slow" and building up to a full load. Students who enroll in 12 credits start out behind and are likely to fall further behind in terms of their academic progress. By the end of the second year, the average number of cumulative credits attained by the 12 credit students was 43 versus 55 for the 16 credit group. At the end of four years, the difference has increased to 24 credits. Finally, the risk of departure appears to be greater for the 12 credit group than either of the other groups at each juncture. Four percent fewer 12 credit students returned for the second semester, while 15% fewer returned for the second year. In the fourth year, 17% fewer students have returned.

It is reasonable to expect that the academic ability of these students would be a factor in these results. Table 2 breaks the 1986 FTIAC cohort into groups by high school g.p.a. and by first-term workload, and illustrates that even taking academic ability into account, students taking 16 credits are more likely to return each semester and are more likely to graduate. These results hold even among students whose high school g.p.a. is less than 2.50. Thus, whatever is taking place here appears to be independent of high school gpa.

Table 2

FTIAC Retention and Graduation Rates

by HS GPA and First-Term Credits

1986 Cohort - Oakland University

(Data Expressed in Percentages)

	HS Gpa					
	2.50-2.99		3.00-3.49		3.50+	
Fall Credits	12	16	12	16	12	16
Number	251	118	218	172	88	124
Four Years						
Enrolled	37.8	42.4	38.4	43.0	45.5	42.8
Graduated	5.6	16.1	9.1	14.0	13.6	29.8
Drop	56.6	41.5	52.5	43.0	40.9	27.4
Five Years						
Enrolled	19.5	16.1	21.0	14.6	18.2	13.7
Graduated	21.9	38.1	28.3	39.5	40.9	58.9
Drop	58.6	45.8	50.7	45.9	40.9	27.4
Six Years						
Enrolled	10.3	11.9	10.9	9.9	4.5	2.5
Graduated	29.1	46.6	37.5	45.3	52.3	68.5
Drop	60.6	41.5	51.6	44.8	43.2	29.0

The next stage of this exploratory investigation looked at the relationship of first term course load to persistence. Linear regression was employed to investigate the relationship of first term course load to other variables that might impact persistence. Oakland University student files include the variables: high school g.p.a., gender, ethnicity, and first term course load. The Office

of Institutional Research and Assessment also has HERI/CIRP freshman survey data files going back to at least the mid-60's. Student responses to questions are coded as variables about: self-ratings on writing and math skills, degree aspirations, family income, parent's education, likelihood of transfer to another institution, and whether Oakland was the student's first choice.

The initial dependent variable was graduation within eight years (i.e., by fall 1994, for the 1986 cohort). The variables that were most strongly correlated to "graduation" were high school g.p.a., first term course load, likelihood of transfer, ethnicity, Oakland was student's first choice, and the student's self-reported math skills. Gender, first generation status, self-reported writing skills, degree aspirations, and writing skills were more weakly correlated, while family income, and dorm/commuter status had almost no correlation. The only variables to be included in the regression equation were high school g.p.a., first term course load, and the likelihood of transfer. The regressions were run in two ways. First term course load was included with the input variables in one analysis, and treated as an environmental or secondary variable in the second. The results were virtually identical. The betas of ethnicity and math skills dropped dramatically when hsgpa was entered and more when credits were added. Choice dropped the most when the variable for transfer entered, so all the other highly correlated variables became insignificant when hsgpa, course load and the transfer variables were added. The beta for female students went up when hsgpa came in, but went down again when course load was entered. The Multiple R was .253 and the R-square was .064.

The equation shows that course load is indeed an independent factor in predicting graduation,

however, the total amount of the variance explained with all factors included was only 6.4%. The equation was repeated on a file that included the freshman cohorts from 1987, 1988 and 1989. Since the time frame involved was shorter, the dependent variable was whether the student had graduated or was still enrolled six years later. The same independent variables were still strongly correlated to graduation, and again the only variables to enter into the equation were high school g.p.a., course load and the likelihood of transfer. The Multiple R equals .187 and the R-square was .034. Similar regression equations were run using retention to the second year as the dependent variable. In this case, course load was the first variable into the equation, followed by whether Oakland University was the student's first choice, high school gpa, intent to transfer and dorm status. The R after first term course load was .213 and it increased to .269 at the end.

The results of the regression bear out at least to some degree, the independent relationship of course load to retention, but we were also interested in what factors contribute to the student's choosing to take a full 16 credit load. The variables most highly correlated with course load in the combined 1987-89 file were high school g.p.a., being a dorm student, ethnicity (negatively for african-american students), math skills, degree aspirations, the intent to graduate in four years, income, whether Oakland was the student's first choice and first-generation (negatively). When we ran a regression using course load as the dependent variable, the independent variables that entered the equation included high school g.p.a., dorm student, african-american student (negative), income and degree aspirations. The multiple R equals .321 and the R-square was .103.

It appears that for Oakland University students, at least some of the factors that we would expect to account for persistence, e.g., dorm status, ethnicity, income and goals, enter into the decision to take a full course load, but then have minimal effect on persistence. This is consistent with Beardslee's findings in 1974.

In Volkwein and Lorang's study (1996), the decision to take lighter "full-time" loads did not seem to be a significant factor in whether or not the student graduated. They did identify a group of students who seemed to experience numerous problems with course scheduling, difficulty, and lack of satisfaction with their academic progress, who seemed to be more likely to drop out. At Oakland University, it was expected that leaving is not necessarily related to academic difficulty. Therefore, the transcript records of a sample of 113 students in the Fall 1986 cohort who: 1) were regular fall admits; 2) returned for at least one semester after the first year; were making slower than normal academic progress (only five had achieved junior status by the third year), and 4) had not graduated within eight years of beginning (i.e., by Fall 1994).

Of this group, 26 had graduated later and two were still attending. Of the 85 leavers, 74 (87%) left in good academic standing. Many of these students experienced some degree of academic difficulty at some point, and some may have left because they were dissatisfied with their rate of progress, but it does not appear from this analysis that academic failure is a major factor in leaving for this group.

Discussion

Why would first term course load matter? Course load may be a predictor of retention and graduation, but it certainly is not a "cause", at least not directly. What do we know from the retention literature that would help to explain how course load is related to student performance and persistence? Beardslee's view of work load is that it signals the student's commitment to his or her education at a particular point in time, and therefore, students who enroll in 12 (or fewer) credits are making less of a commitment to their education. Beardslee's point is that over a college career, many "events" occur (e.g., financial difficulties, marriage, personal problems, etc.) and the student's response to those events is a result and a measure of her level of commitment. For some students, marriage is a "reason" to leave school; for others, it is not. The different responses signal different levels of commitment. Then it is possible that some reinforcing dynamics occur. A student who enrolls for fewer credits may already be somewhat less committed, and because they have fewer credits, they are less involved and accumulate fewer credits, and the lower level of involvement and the lengthening of the time to degree contribute to a further weakening of the commitment. And then they think "I'm not going to graduate in four years anyway, so I might as well work more hours." Obviously, this will not be the pattern for all students who enroll for fewer credits. Some may have a very strong commitment even though they have competing demands on their time and resources. But for others, especially those who feel unsure about their goals or abilities, this may initiate a downward spiral.

Preliminary findings have shown that patterns are established during that first term which persist throughout the student's college career. How much time they spend studying versus working or

socializing may be established early, so that if they take a lighter load the first term and find that they have time to spare, they may use that time to work additional hours or do other things (although we would like to think that they would use the time to study more, that is probably not what actually happens). Oakland University students to a greater extent than for students in other primarily residential schools, inhabit an environment that encompasses much more than just the university. Their menu of choices of how to spend their time is much more varied than for students who attend residential schools. Once the time allocation has been made, it is likely that it continues through the remaining years. If they now work 24 instead of 16 hours per week, they have become accustomed to that amount of income, so they continue to work more hours and take 12 or fewer credits. The proportion of time spent on academics, working, or socializing may be established as a pattern in the first year.

The students' expectations regarding their ability to succeed in college may also be a factor here. If enrolling for fewer credits is related to lack of academic self-confidence, this may also contribute to the development of a downward spiral. Students' perceptions of faculty and staff expectations may also be influential. For example, sometimes students are advised to take fewer credits at first with messages like "college work is hard", "see if you can handle it", "start easy and work your way up to a full load", Although the purveyors of those messages probably intend to help the student succeed in college, it may be that the underlying message that the student receives is that they are not capable of succeeding in college. What happens then when the student does poorly in calculus in the first term? What message is reinforced?

Analysis & Results - The major thrust of the present research at Northern Michigan University has been to examine the credit loads of new freshmen and to look at issues such as first and subsequent semester gpa and retention to the second year of study. In addition, the research effort has also examined the linkage between credit load and the total costs of education at Northern Michigan University. As suggested above in the background section, the data clearly indicate a relationship of credits to gpa as well as retention. Analyses have also quite logically shown that lower credit hour loads are related to increases in time to graduation, increases in the overall cost of education (about $2,000.00 per semester), and to the accumulation of loan debt. Clearly, the findings to date suggest a powerful role for this variable. However, the specific nature of this role is still very unclear.

As shown in Table 3, the variable of credit hours at college onset is strongly and consistently linked to first semester performance.

Table 3

Pearson Correlation Results with First Semester GPA

Fall 1993 - Fall 1996 NMU New Freshmen

Variable	Fall 1993	Fall 1994	Fall 1995	Fall 1996
ACT:Comp	.3387**	.3174**	.3814**	.3985**
HS GPA	.3713**	.4198**	.4426**	.4456**
HS Units	.1774**	.1246**	.1838**	.1173**
Fall Cr. Hrs	.2091**	.1948**	.2045**	.2513**

**Significant le .01

Clearly, there is a great deal of overlap between and among these variables. This will be examined below in the regression analysis discussion.

The methodology utilized at Northern Michigan has been to gather student perceptual data as well as information concerning the academic credentials of first-time, full-time freshmen. This background information has been obtained through the administration of the New Student Orientation Survey. While the original instrument had been utilized at Northern Michigan from 1985-1987, it had not been administered to new students for seven years. Beginning in Fall 1994 and continuing in Fall 1995 and 1996, this instrument is once again being administered to all new freshmen and new transfers who attend an orientation session. The primary purposes of the orientation survey are to gather information about:

1) the reasons that the student chose to attend this institution,
2) background demographic factors such as family financial support and whether they are the first in their family to attend college,
3) student expectations about involvement and performance at NMU, and
4) self-perceptions about the student's strengths and weaknesses in comparison to other students.

This instrument is included as an attachment to this paper.

Given the fact that this important descriptive and perceptual information is available for just the past two years, the present research is based only on the data from 1994 and 1995 and, therefore the measures being examined are only short term in nature. Unlike Oakland University, the focus here is on studying first semester course load as a dependent variable. Similar to the approach of Volkwein and Lorang (1996), the present analyses are aimed at identifying those factors which consistently predict course credit hour behavior.

The results from the orientation survey as well as prior academic performance measures were analyzed for the 1994 new student cohort using the Pearson Product Moment Correlation technique. A broad array of these indicators were strongly correlated with Fall 1994 first semester course load. A factor analysis of these results is being undertaken and the preliminary results (not yet available) seem to indicate four factors which appear to be related to student credit hour behavior.

1) prior academic credentials - hs gpa, high school units, ACT Composite Score;

2) aspirations - students who have clear goals and those who want to pursue advanced degrees;

3) commitment - a perception that there is a good fit from an academic, social, housing (dorm) and fiscal perspective with the institution;

4) self perceptions, most especially with regard to mathematics as well as overall academics.

The next phase in the analysis was to apply the 1994 set of selected highly correlated variables, to a new cohort, in this case the new students from Fall 1995. The Pearson results do vary somewhat in strength but the pattern of findings is very similar between the two student cohorts. The strength of the stepwise procedure is that it identifies the strongest predictive factor and pulls it and all of its associated predictive power out; and then turns to the next most potent independent explanatory variable. The results for the 1994 new student cohort are:

Table 4

1994 Analysis - Dependent variable - Fall 1994 hours

Variable 1 - ACT Composite Score - Multiple R = .26083, R-square = .06803,

Variable 2 - Importance of living on campus - Multiple R = .30726, R-square = .09441,

Variable 3 - Clarity of career goals - Multiple R = .32253, R-square = .10403,

Variable 4 - HS GPA - Multiple R = .33349, R-square = .111121.

The same variables were then applied (in the same order) to the 1995 new student cohort.

Table 5

1995 Analysis - Dependent variable - Fall 1995 hours

Variable 1 - ACT Composite Score - Multiple R = .31816, R-square = .10123,

Variable 2 - Self rating of public speaking ability - Multiple R = .35539, R-square = .12630,

Variable 3 - Age - Multiple R = .38139, R-square = .14546,

Variable 4 - Clarity of career goals - Multiple R = .40850, R-square = .16687,

Variable 5 - First in family to attend NMU - Multiple R = .42332, R-square = .17920,

Variable 6 - Self rating of mathematics ability - Multiple R = .43692, R-square = .19090,

Variable 7 - Self rating of writing ability - Multiple R = .44299, R-square = .19624,

Variable 8 - HS GPA - Multiple R = .44807, R-square = .20077,

Variable 9 - Importance of living on campus - Multiple R = .45281, R-square = .20504,

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The results of the 1995 stepwise analyses are impressive. While the selected variables are not

identical between the two student cohorts, there is a considerable amount of overlap. Also, the use of the perceptual and background variables accounted for a great deal of the variance in the credit hour load behaviors of both new student cohorts, particularly the 1995 group which actually represents the validation sample. Clearly, many factors appear to impact student course taking behavior. Many of these factors are relatively fluid and could be addressed within orientation sessions. This might in turn, impact student behavior.

Implications - Three to six percent of explained variance may be in the normal range for explaining graduation, but it still leaves a great deal yet to be understood. Secondly, having established more evidence for Beardslee's's premise that first term course load is an independent predictor of persistence, we are left with some interesting follow-up issues:

- If course load at college onset is a "stand-in" for commitment, what are the institutional and societal implications of the decline in the number of students who initially enroll for a *true* "full load"?
- Are students simply becoming less committed?
- Are the competing economic and social demands becoming more intense?
- What factors are involved in a student's initial decision to enroll for less than a full load?
- What, if anything, can the university do to help students choose to make the commitment to their education early in their career?

The implications for policy and practice are similar for both institutions. University Committees are examining institutional policies and practices to try to identify those that may reinforce the wrong behaviors, e.g., tuition assessment, financial aid awards and refund policies. The institutional research offices at both campuses are aggressively promoting discussions with admissions, orientation and student service offices to explore what and how to communicate to new students to help them make an early commitment to their academic careers. Departmental meetings and institutional data sharing in campus publications are being carried out with academic and non-academic advisors in order to **encourage them to encourage students** to take a full (i.e., 16 credit) course load and the benefits of doing so.

At Northern Michigan University, a "flat rate" tuition model is being put in place for Fall 1997 which will provide a powerful financial incentive for students to sign up for more credits since the real cost is the same for taking 18 credits as it is for taking 12. This will be a direct opportunity for NMU students to impact the overall cost in time and money of obtaining their degree as well as lowering the amount of debt they assume. Finally, this change in tuition assessment should reverse the trend toward increasing time to degree which has been growing at a steady rate. Recent estimates are that an NMU student expends almost $9,000 in direct cost as well as $22,000 in foregone income for each year that his or her degree is postponed. It will be an interesting field test to examine how a change in institutional tuition policy will impact student course taking behavior, student performance, persistence, degree attainment, length of time to degree, overall cost of obtaining a degree and financial aid debt load.

Conclusions - This is a topic which will soon come into prominence in the higher education literature. As colleges become more universally seen as the minimally acceptable level of education, on average the individual degree of commitment to the task of completing college will wane. The role of this particular variable, i.e., the number of credit hours at the onset of a student's college career, will increase in importance. The construct of the 'extender' or the 'part-time, full-time' student has real meaning not only for the student but also for planning, policies and procedures on our campuses. The topic lends itself beautifully to a multi-institutional focus which will provide breadth and depth to the analyses within the individual context and climate of the widely varying set of institutions which make up higher education in the State of Michigan. Widespread interest in this topic is not only invited but welcome.

References

Astin, A.W. (1993). Assessment for excellence: *The philosophy and practice of assessment and evaluation in higher education*. Phoenix: The Oryx Press.

Bean, J.P., and Metzner, B.S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Higher Educational Research* 55 (4): 485-540.

Beardslee, D. (1972). OIR Memo, No. 12, *How many succeed*?

Beardslee, D. (1974). OIR Memo, No. 12, Supplement 2, *First term workload and persistence*.

Beardslee, D. (1979). OIR Memo, No. 12, Supplement 5, *Thinking about retention is thinking about people*.

Cabrera, A.F., Castande, M.B., Nora, A., & Hengstler, D. The Convergence Between Two Theories of College Persistence. *Review of Higher Educational Research* 63, 143-146.

Cope, R., and Hannah, W. (1975). *Revolving college doors*. New York: John Wiley and Sons.

Hartle, T.W. (1996) The Specter of Budget Uncertainty. *Chronicle of Higher Education*, *64*, (28 June), B1-B2.

Layzell, D.T., and Lyddon, J.W. (1990). Budgeting for Higher Education at the State Level. *ASHE-ERIC Higher Education Report*, (4), Washington, D.C.: The George Washington University.

Pace, C.R. (1984). *Measuring the quality of the college student experience*. Los Angeles: University of California, Higher Education Research Institute.

Tinto, V. (1973). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: The University of Chicago Press.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research* 45:89-125.

Volkwein, J. F. (1993). Full-time students who take light credit loads and graduate in more than four years. Paper presented at the annual conference of the Association for the Study of Higher Education, Pittsburgh, PA.

Volkwein, J. F., and Lorang, W.G. (1996). Characteristics of extenders:Full-time students who take light credit loads and graduate in more than four years. *Research in Higher Education* 37 (1): 43-68.

1994
New Student Orientation Survey

Name _____ Student ID Number _____

1. What is the highest academic degree you expect to obtain?

(1)_____ One-Year Certificate
(2)_____ Two-Year Degree
(3)_____ Bachelor's Degree
(4)_____ Master's Degree
(5)_____ Doctoral Degree (Ph.D., Ed.D.)
(6)_____ Professional (M.D., J.D., D.D.S., etc.)
(7)_____ Other

2. Did you visit the NMU campus before attending this orientation session?

(1)_____ Yes
(2)_____ No

3. How certain or confident are you that you made the right choice in choosing to attend NMU this fall?

(1)_____ Extremely confident
(2)_____ Reasonably sure
(3)_____ Remains to be seen
(4)_____ Not at all sure

4. In applying to colleges, was NMU your:

(1)_____ 1st choice? (Please answer #5)
(2)_____ 2nd choice? (Skip to #6)
(3)_____ 3rd or lower choice? (Skip to #6)

5a. If NMU was your first choice, was it because of NMU's (please check only the *most important* factor):

(1)_____ Academic reputation
(2)_____ Cost
(3)_____ Small size
(4)_____ Distance from home
(5)_____ Natural environment
(6)_____ Scholarship/financial aid package
(7)_____ Wide range of academic programs
(8)_____ Strong athletic program
(9)_____ Graduate placement record
(10)_____ Other: _____

5b. What was your next important reason? _____ (Use codes from #5a)

6. If NMU was not your first choice, was it because of (please check only the *most important* factor):

(1)_____ Inadequate financial aid package

(2)_____ Academic reputation

(3)_____ Distance from home

(4)_____ Natural environment

(5)_____ Lack of a specific academic program

Which Program: _____

(6)_____ Small size

(7)_____ Social reputation

(8)_____ Lack of a specific athletic program

Which Program: _____

(9)_____ Other: _____

7. How important is it to you to receive a degree from NMU?

(1)_____ Not at all important (Please answer #8)

(2)_____ Somewhat important (Please answer #8)

(3)_____ Very important (Skip to #9)

(4)_____ Extremely important (Skip to #9)

8. If it is not important to receive a degree from NMU, which one of the following *best* describes your reason for attending NMU (check only one)?

(1)_____ Taking courses for personal development, not for a degree

(2)_____ Taking courses for professional upgrading, not to earn a degree

(3)_____ Taking courses while I sort out what I want to do with my life

(4)_____ Taking transferable courses to be used as credit for admission to another school

(5)_____ Other: _____

9. Are you the first in your immediate family to attend a four-year college or university?

(1)_____ Yes

(2)_____ No

10. Has anyone from your immediate family ever attended NMU?

(1)_____ Yes

(2)_____ No

11. Will any of your friends from high school be attending NMU this year?

(1)_____ Yes

(2)_____ No

12. In your first semester at NMU, about how many hours per week (on the average) do you expect to spend studying (outside of class)?

_____ hours

13. Indicate the importance to you personally of each of the following (Please circle ONE number for each item):

	Essential	Very Important	Somewhat Important	Not Important
Living on campus	1	2	3	4
Interacting frequently with faculty outside of class	1	2	3	4
Earning a good salary when I graduate	1	2	3	4
Having close student friends on campus	1	2	3	4
Studying with other students	1	2	3	4
Getting involved in a student organization or club	1	2	3	4
Gaining knowledge and skills directly applicable to a career	1	2	3	4
Learning more about myself, my values, and my life's goals	1	2	3	4
Getting out on my own and being away from home	1	2	3	4
Earning good ("B" or higher) grades	1	2	3	4

14. What is your best guess as to the chances that you will (Please circle ONE number for each item):

	Excellent Chance	Very Good Chance	Some Chance	Very Little Chance	No Chance
Have to work much harder in college than in high school in order to achieve comparable grades	1	2	3	4	5
Have to work at least 15 hours per week at a job during my freshman or sophomore years	1	2	3	4	5
Make at least a "B" average	1	2	3	4	5
Transfer to another college before graduating	1	2	3	4	5
Find it easy to make friends with other students at NMU	1	2	3	4	5
Fail one or more courses at NMU	1	2	3	4	5
Find knowledgeable and interested faculty on campus	1	2	3	4	5
Find it easy to learn at NMU because of its low student-to-faculty ratio	1	2	3	4	5
Find sufficient opportunities for extracurricular involvement at NMU	1	2	3	4	5
Find a broad selection of academic programs at NMU	1	2	3	4	5
Find NMU to be intellectually stimulating	1	2	3	4	5
Find high quality academic programs at NMU	1	2	3	4	5
Become an effective student leader at NMU	1	2	3	4	5
Be well prepared to get a good job at graduation	1	2	3	4	5
Be satisfied with NMU	1	2	3	4	5

15. Please indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
Compared to other colleges and universities in *Michigan*, NMU's total cost is reasonable	1	2	3	4	5
NMU's overall academic reputation in our high school or area is a positive one	1	2	3	4	5
NMU's record in placing students after graduation is very strong	1	2	3	4	5
My family supports my decision to attend NMU	1	2	3	4	5
I feel that this family support is adequate	1	2	3	4	5

16. How do you rate yourself on each of the following traits compared with the average person of your age who is going on to college (Please circle ONE number for each item)?

	Superior	Above Average	Average	Below Average
Academic ability	1	2	3	4
Motivation to achieve	1	2	3	4
Leadership ability	1	2	3	4
Self-confidence (social)	1	2	3	4
Writing ability	1	2	3	4
Originality	1	2	3	4
Athletic ability	1	2	3	4
Self-confidence (intellectual)	1	2	3	4
Public speaking ability	1	2	3	4
Mathematical ability	1	2	3	4
Understanding of others	1	2	3	4
Clear career goals	1	2	3	4

Comments (use the space below for additional comments or remarks):

Thank you for your participation!